

REMARKS

Status of the Claims.

Claims 1-15 are pending with entry of this amendment, claims 16-26 being canceled and no claims being added herein. Claims 1, 4, and 6 and the specification are amended herein. These amendments introduce no new matter. The amendments are made to replace one letter amino acid codes with three letter amino acid codes, to eliminate the use of square brackets in the specification, to eliminate express reference to non-elected sequences in the claims, and to improve clarity. Support is replete throughout the specification (*e.g.*, in Table 1, the claims as filed, *etc.*).

Election/Restriction.

Pursuant to a restriction requirement made final, Applicants cancel claims 15-26 and amend claims 1 and 4 to the elected species with entry of this amendment. Please note, however, that Applicants reserve the right to file subsequent applications claiming the canceled subject matter and the claim cancellations should not be construed as abandonment or agreement with the Examiner's position in the Office Action.

Informalities.

The specification was objected to for allegedly not conforming to 37 C.R.F. §1.822(d)(1) since the amino acids in the peptide sequences of the invention are listed with one letter abbreviations instead of the three letter code. The specification is amended herein to replace the one letter amino acid abbreviations with the three letter amino acid abbreviations thereby obviating this objection..

The specification as also objected to for the use of square brackets "[]". The specification has been amended herein to remove the square brackets thereby obviating this objection.

Claim Objections.

Claims 1 and 4 were objected to for the use of one letter rather than three-letter amino acid codes. Claims 1 and 4 are amended herein to replace the one-letter codes with three-letter codes thereby obviating this objection.

Obviousness-Type Double patenting.

Claims 1-15 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1 and 5-13 of U.S.

Patent 6,037,137. Applicants will provide a Terminal Disclaimer upon an indication of otherwise patentable subject matter.

35 U.S.C. §112, Second Paragraph.

Claims 1-15 were rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite as explained below:

A) Non-elected sequences.

Claims 1-15 were rejected as allegedly indefinite because the claims contained non-elected sequences. Claims 1 and 4 are amended herein to only recite the elected sequences thereby obviating this rejection.

B) Use of the term "dipeptide".

Claims 1-15 were rejected as allegedly indefinite because the claims recite "aa², aa³, aa⁹, and aa⁹ are independently selected from the group consisting of an amino acid or a dipeptide," however, there was allegedly no dipeptide recited in the Markush group.

Claim 1 is amended herein to eliminate reference to the dipeptide thereby obviating this rejection.

C) Use of the term "fm and fmoc".

The Examiners rejected claims 1-15 because of the allegedly inconsistent use of the abbreviations "Fm" and "Fmoc". Applicants believe the claims, as amended herein, consistently refer to "Fmoc" thereby obviating this rejection.

D) Use of the term "about".

Claim 6 was rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite in the recitation of the phrase "between about". Claim 6 is amended to recite "in the range of 315 nm to 700 nm" thereby obviating this rejection..

E) Use of the term "or other anion".

Claim 9 was rejected as allegedly indefinite in the recitation of "other anion".

Applicants respectfully traverse. The Examiner is reminded that a is deemed definite if "... read in light of the specification [it] reasonably apprise[s] those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits." *Hybritech Inc. v Monoclonal Antibodies, Inc.*, 231 USPQ 81 (Fed. Cir. 1986) *cert. denied* 480 U.S. 947 (1987) *citing Shatterproof Glass*, 225 USPQ 634, 641 (Fed. Cir. 1985).

In the instant case, the fluorophores listed in the Markush Group of claim 9 are listed as halide anions. One of ordinary skill would readily appreciate that, while the fluorophores are identified as halide anions (*e.g.*, 9-(2,5)-dicarboxyphenyl)-2,7-dimethyl-3,6-bis(ethylamino)xanthylium **halide**), the same fluorophores are available in other anionic forms and such forms are commercially available from a number of suppliers (*e.g.* Molecular Probes, Inc.). It is prohibitively cumbersome, however to expressly recite every anion form for each of the fluorophores. Nevertheless, presented with such a fluorophore anion, one of skill would readily recognize the moiety.

The claims thus reasonably apprise those skilled in the art both of the utilization and scope of the invention, and is as precise as the subject matter permits. Accordingly the rejection of claim 9 under 35 U.S.C. §112, second paragraph, should be withdrawn.

F) The phrase "bears a hydrophobic group".

Claims 10-14 were rejected as allegedly indefinite because of the recitation "bears a hydrophobic group". The Examiner alleged that the claim was indefinite because it is unclear where the hydrophobic group is located. Applicants traverse.

The claim need not recite a location of the hydrophobic group to be definite. Indeed, it is contemplated that the hydrophobic group might be located at any "convenient" location on the molecule. One of skill in the art would readily appreciate that the claim pertains to the recited molecule(s) bearing a hydrophobic group at any location. Moreover, it is unduly burdensome to enumerate every location where such a hydrophobic group might be coupled.

The claims thus reasonably apprise those skilled in the art both of the utilization and scope of the invention, and is as precise as the subject matter permits. Accordingly the rejection of claims 10-14, under 35 U.S.C. §112, second paragraph, should be withdrawn.

In view of the foregoing, Applicants believes all claims now pending in this application are in condition for allowance, but for the filing of a Terminal Disclaimer. The issuance of a formal Notice of Allowance at an early date is respectfully requested. Should the Examiner seek to maintain the rejections, Applicants request a telephone interview with the Examiner and the Examiner's supervisor.

If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (510) 337-7871.

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Respectfully submitted,



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Replacement Table 4. Page 1

Substrate class	aa ¹	aa ² -aa ³	aa ⁴	aa ⁵	X	P	Y	aa ⁶	aa ⁷	aa ⁸ -aa ⁹	aa ¹⁰	S ²
CPP32 substrates (preferably with DER and TMR fluorophores). Note where Fmoc (Fm) is indicated, it is optional, and where not indicated it can be added.												
	Fa-Lys	Asp		Pro	Ahx Gly	AspGluValAspGlyIleNle	GlyA hx	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	AspGluValAspGlyIleNle	GlyA hx	Pro			Lys amide	
	Fm-Lys	Asp		Pro	Ahx Gly	(d-O)AspGluValAspGlyIleNle	GlyA hx	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	AspGluValAspGlyIleNle	Gly	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Gly	AspGluValAspGlyIleNle	GlyA hx	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	AspGluValAspGGlylleAsp	GlyA hx	Pro			Lys amide	
	Fm-Lys	Asp		Pro	Ahx Gly	GluGluValGluGlyIleNle	GlyA hx	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	Asp(dPhe)ValAspGlylleNle	GlyA hx	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	(d-Asp)GluVal(d-Asp)GlylleNle	GlyA hx	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	AspGluValAspGlyIleNle	GlyA hx	Pro			Lys	GlyTy _r

Replacement Table 4. Page 2

	Fm-Lys	AspB			Ahx Gly	AspGluValNleGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Fm-Lys	AspB			Ahx Gly	AspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Fm-Lys	AspB			Ahx Gly	AspGluValAspGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Fm-Lys	AspB			Ahx Gly	AspGluValNleGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Ahx	GlyAspGluValAspGlyIleAsp	Ahx Ahx	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx	GlyNleGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx	GlyAspGluValAspGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx	GlyNleGluValAspGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx	GlyAspGluValNleGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx	GlyNleGluValNleNleGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	OaaAspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyLys _s
	Lys	Asp		Aib	Ahx Gly	dOaaAspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	TrpAspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r

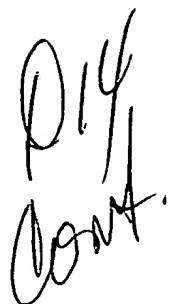


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Replacement Table 4. Page 3

	Lys	Asp		Aib	Ahx Gly	dTrpAspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	dOaadOaaAspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	dTrpdTrpAspGluValAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib		TyrValAlaAspGlyIleAsp		Pro			Lys	GlyTy _r
	Lys	Asp		Aib		TyrValAlaAspGlyIleNle		Pro			Lys	GlyTy _r
	Lys	Asp		Aib		YVANGlyIleNle		Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Gly	TyrValAlaAspGlyIleAsp	Gly	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Gly	TyrValAlaAspGlyIleNle	Gly	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Gly	TyrValAlaAlaNleGlyIIeNle	Gly	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	TyrValAlaAspGlyIleAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	TyrValAlaAlaNleGlyIIeAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	TyrValAlaAlaNleGlyIIeAsp	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	TyrValAlaAlaNleGlyIIeNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	TyrValAlaAspGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r



Replacement Table 4. Page 4

	Lys	Asp		Aib	Ahx Gly	dTyrValAlaAspGly IleNle	GlyA hx	Pro		Lys	GlyTy r
LAMIN-A											
	Fm-Lys	Asp		Pro	Ahx Gly	LeuValGluIleAspN IleGly	Ahx	Pro		Lys	GlyTy r
	Fm-Lys	AspP			Ahx Gly	LeuValGluIleGluN IleGly	Ahx	Pro		Lys	GlyTy r
	Lys	Asp		Aib		LeuValGluIleAspN IleGly		Pro		Lys	GlyTy r
	Lys	Asp		Aib	Gly	LeuValGluIleAspN IleGly	Gly	Pro		Lys	GlyTy r
	Lys	Asp		Aib	Ahx Gly	LeuValGluIleAspN IleGly	GlyA hx	Pro		Lys	GlyTy r
	Lys	Asp		Aib	Ahx Gly	LeuValGluIleNleNI eGly	GlyA hx	Pro		Lys	GlyTy r
ProCPP32Asp175											
	Fm-Lys	Asp		Pro	Ahx	GlyIleGluThrGluSe rGlyVal	GlyA hx	Pro		Lys	GlyTy r
	Fm-Lys	Asp		Pro	Ahx	GlyIleGluThrAspS erGly	Ahx	Pro		Lys	GlyTy r
	Fm-Lys	Asp		Pro	Ahx	GlyIleGluThrGluSe rGly	Ahx	Pro		Lys	GlyTy r
	Lys	Asp		Aib		GlyIleGluThrAspS erGlyValAspAsp		Pro		Lys	GlyTy r
	Lys	Asp		Aib		GlyIleGluThrNleSe rGlyValAspAsp		Pro		Lys	GlyTy r

Replacement Table 4. Page 5

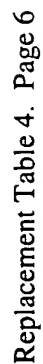
	Lys	Asp		Aib	Gly	GlylleGluThr <u>Asp</u> S erGlyValAspAsp	Gly	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Gly	GlylleGluThrNleSe rGlyVal	Gly	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx	GlylleGluThrAspS erGlyVal	Ahx	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx	GlylleGluThrNleSe rGlyVal	Ahx	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx Gly	GlylleGluThrAspS erGlyVal	GlyA hx	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx Gly	GlylleGluThrNleSe rGlyVal	GlyA hx	Pro			Lys	GlyTy r

ProCPP32Asp28

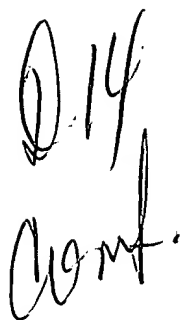
	Lys	Asp		Aib		GlySerGluSerMetA spSerGlylleSerLeu Asp		Pro			Lys	GlyTy r
	Lys	Asp		Aib	Gly	GlySerGluSerMetA spSerGly	Gly	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx Gly	GlySerGluSerMetA spSerGly	GlyA hx	Pro			Lys	GlyTy r

NS3 NS5A/5B

	Lys	Asp		Aib	Ahx Gly	AspValValCysCys SerMetSer	GlyA hx	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx Gly	AspValValCysAsp SerMetSer	GlyA hx	Pro			Lys	GlyTy r
	Lys	Asp		Aib	Ahx	AspValValCysCys	GlyA	Pro			Lys	GlyTy



					Gly	SerMetSer	hx				r
Lys	Asp	Aib	Ahx Gly	AspValValCysAsp SerMetSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	AspValValCysCys ProdMetSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	GluAspValValCys CysSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	GluAspValValCys AspSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	GluAspdValValCy sCysPro	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	GluAspdValValCy sAspPro	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	AspdValValCysCy sSerMetSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	AspValdValCysAs pSerMetSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	AspdValValCysCy sPrpdMetSer	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	AspValValCysCys SerMet	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	AspValValCysAsp SerMet	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	ValCycCysSM	GlyA hx	Pro				Lys	GlyTy r
Lys	Asp	Aib	Ahx Gly	ValCysAspSM	GlyA hx	Pro				Lys	GlyTy r



NS3 NS4A/4B												
	Lys	Asp		Aib	Ahx Gly	AspGluMetGluGlu CysSerGlnHisLeu		Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	AspGluMetGluGlu CysProGlnHisLeu		Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	AspGluMetGluGlu AspSerGlnHisLeu		Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluCys SerGlnHisLeu		Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluCPr oGlnHisLeu		Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluAsp SerGlnHisLeu		Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluCys SerGlnHisLeu	Gly	Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluCys ProGlnHisLeu	Gly	Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluAsp SerGlnHisLeu	Gly	Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluCys SerGlnHisLeu	GlyA hx	Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluCys ProGlnHisLeq	GlyA hx	Pro			Lys	GlyTyr
	Lys	Asp		Aib	Ahx Gly	GluMetGluGluAsp SerGlnHisLeu	GlyA hx	Pro			Lys	GlyTyr

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Replacement Table 4. Page 8

	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArg ThrGly	Ahx	Pro		Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValdMetThrGlyArg gThrGly	Ahx	Pro		Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArg ThrGly	Ahx	Pro		Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArg ThrGly	Ahx	Pro		Lys	GlyTy _r
THROMB											
	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArg Gly	Ahx	Pro		Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArg Gly	GlyA hx	Pro		Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValdMetThrGlyArg gGly	GlyA hx	Pro		Lys	GlyTy _r
Urokinase											
	Fm-Lys	Asp		Pro	Ahx	ThrGlyArgThr					
		Fm-Asp		Pro		ThrGlyArgThr	Gly	Pro		Lys	GlyTy _r
	Fm-Lys	Asp		Pro		VMThrGlyArgThr	GlyA hx	Pro		Lys	GlyTy _r
	Fm-Lys	Asp		Pro		ThrGlyArgThr	GlyA hx	Pro		Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	ThrGlyArgThr	GlyA hx	Pro		Lys	GlyTy _r



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Replacement Table 4. Page 9

	Fm-Lys	Asp		Pro	Ahx Gly	ThrGlyArgThr	Gly	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Gly	ThrGlyArgThr	Gly	Pro			Lys	GlyTy _r
	Lys	Asp		Pro	Ahx	ThrGlyArgThrGly	Ahx	Pro			Lys	GlyTy _r
	Lys	Asp		Pro	C3	ThrGlyArgThrGly		Pro			Lys	GlyTy _r
	Lys	Asp		Pro	C7	ThrGlyArgThrGly		Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArg; ValGly	Ahx	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValdMetThrGlyArgValGly	Ahx	Pro			Lys	GlyTy _r
F12A												
	Lys	Asp		Aib	Ahx Gly	ValMetThrGlyArgAlaGly	Ahx	Pro			Lys	GlyTy _r
	Lys	Asp		Aib	Ahx Gly	ValdMetThrGlyArggAlaGly	Ahx	Pro			Lys	GlyTy _r
Swedish KM/NL AMLROID												
	Fm-Lys	Asp		Pro	Ahx Gly	SerGluValLysLeuAspAlaGluPheGlyGlyC5ProLysGlyTyr	GlyA _{hx}	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	Ser(d-Glu)ValLys(d-Leu)AspAlaGlu(d-	GlyA _{hx}	Pro			Lys	GlyTy _r



Replacement Table 4. Page 10

	Fm-Lys	Asp			Ahx Gly	Ser(d-Glu)ValLys(d-Leu) <u>AspAlaGlu</u> (d-Phe)	GlyA _{hx}	Pro		Lys	GlyTyr _r
	Lys	Asp		Aib	Ahx Gly	Ser <u>GluValNleLysA</u> <u>spAlaGluPhe</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
	Lys	Asp		Aib	Ahx Gly	SerGluValLysLeu <u>AspAlaGluPhe</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
NATIVE AMYLOID											
	Lys	Asp		Aib	Ahx Gly	SerGluValKM <u>MDA GluPhe</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
CATHESPSIN G											
	Lys	Asp		Aib	Ahx Gly	SerGluValKM <u>DDD GluPhe</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
	Lys	Asp		Aib	Ahx Gly	SerGluValNleLysA <u>spAspGluPhe</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
APP(709-710)											
	Lys	Asp		Aib	Ahx Gly	GlyValVallle <u>AlaTh rVallleVallleThr</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
APP(708-719)											
	Lys	Asp		Aib	Ahx Gly	TyrGlyValVallle <u>Al aThrVallleVallleTh rI</u>	GlyA _{hx}	Pro		Lys	AspAs pTyr
APP(711-716)											
	Lys	Asp		Aib	Ahx	VallleAlaThrVallle	GlyA	Pro		Lys	AspAs



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Replacement Table 4. Page 11

						Gly		hx				pTyr
APP(708-713)												
	Lys	Asp		Aib	Ahx Aib		TyrGlyValValIleAl a	GlyA hx	Pro		Lys	AspAs pTyr
PSA Sg1												
	Lys	Asp		Aib	Ahx Ahx		GlnGlnLeuLeuHis Nle	Ahx Ahx	Pro		Lys	
	Lys	Asp		Aib	Ahx Gly		GlnGlnLeuLeuHis Nle	GlyA hx	Pro		Lys	
	Lys	Asp		Aib	Gly		GlnGlnLeuLeuHis Nle	Gly	Pro		Lys	
	Lys	Asp		Aib			GlnGlnLeuLeuHis Nle		Pro		Lys	
PSA Sg2												
	Lys	Asp		Aib	Ahx Ahx		SerIleGlnTyrThrTy r	Ahx Ahx	Pro		Lys	
	Lys	Asp		Aib	Ahx Gly		SerIleGlnTyrThrTy r	GlyA hx	Pro		Lys	
	Lys	Asp		Aib	Gly		SerIleGlnTyrThrTy r	Gly	Pro		Lys	
	Lys	Asp		Aib			SerIleGlnTyrThrTy r		Pro		Lys	
PSA Sg3												
	Lys	Asp		Aib	Ahx Ahx		SerSerGlnTyrSerNI e	Ahx Ahx	Pro		Lys	
	Lys	Asp		Aib	Ahx		SerSerGlnTyrSerNI	GlyA	Pro		Lys	

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					Gly	e	hx					
	Lys	Asp	Aib	Gly	SerSerGlnTyrSerNI _e	Gly						Lys
	Lys	Asp	Aib		SerSerGlnTyrSerNI _e							Lys
PSA Sg4												
	Lys	Asp	Aib	Ahx Ahx	SerSerlleTyrSerGln	Ahx Ahx	Pro					Lys
	Lys	Asp	Aib	Ahx Gly	SerSerlleTyrSerGln	GlyA _{hx}	Pro					Lys
	Lys	Asp	Aib	Gly	SerSerlleTyrSerGln	Gly	Pro					Lys
	Lys	Asp	Aib		SerSerlleTyrSerGln		Pro					Lys
Cathepsin D substrates (preferably with diethylrhodamine fluorophore, note fmoc (Fm) is optional)												
	Fm-Lys	Asp	Pro	Ahx Gly	SerGlu ValIleLeuA _{spAlaGluPhe}	GlyA _{hx}	Pro					Lys GlyTy _r
Caspase-9												
	Fm-Lys	Asp	Pro	Ahx Gly	LeuGluHisAspGlyI _{IleNle}	GlyA _{hx}	Pro					Lys GlyTy _r
Caspase-8												
	Fm-Lys	Asp	Pro	Ahx Gly	LeuGluThrAspGlyI _{IleNle}	GlyA _{hx}	Pro					Lys GlyTy _r
Caspase-1												
	Fm-Lys	Asp	Pro	Ahx Gly	TrpGluHisAspGlyI _{IleNle}	GlyA _{hx}	Pro					Lys GlyTy _r
	Fm-Lys	Asp	Pro	Ahx	TyrValHisAspGly	Ahx	Pro					Lys GlyTy _r



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Replacement Table 4. Page 13

	Lys				Gly							r
	Fm-Lys	Asp		Pro	Ahx Gly	TyrValHisAspGlyIleNle	GlyA _{hx}	Pro			Lys	GlyTy _r
	Fm-Lys	Asp		Pro	Ahx Gly	TyrValHisAspAla		Pro			Lys	GlyTy _r
Granzyme B												
	Fm-Lys	AspPro			Ahx Gly	IleGluProAspSer	GlyA _{hx}	Pro			Lys	GlyTy _r
Collagenase												
	Fm-Lys	AspPro			Ahx Gly	ProLeuGlyIleAlaGlylle	GlyA _{hx}	Pro			Lys	GlyTy _r
HIV-1 protease												
	Fm-Lys	AspPro			Ahx Gly	SerGlnNleTyrProIleValGln	GlyA _{hx}	Pro			Lys	GlyTy _r
Hepatitis C protease												
	Fa-Lys	AspPro			Ahx Gly	GluAspValValCysCysSer	GlyA _{hx}	Pro			Lys	GlyTy _r